Oxyria digyna

Mountain sorrel

Status

Federal status: G5 N?, Not listed
NH state status: S1, Threatened
ME state status: Not ranked or listed

Flora Conservanda Division 2, regionally rare taxa with fewer than 20 occurrences in New England. Two-thirds of the documented populations in New England are historic, but only one has documentation that it was looked for and not found in the last 20 years.

The expert panel estimated the range-wide and WMNF viability at outcome B- to C+ now and in the next 20 years. Trail impact on this species and its community in the Presidentials is not that high. Local demes have been lost, but the overall geographic extent of the taxon has not been reduced. It is expected that recreation impacts will increase in the next 20 years, but so will public awareness, which may mitigate some impacts. Winter campers will affect snowbank areas near the huts. If off-trail hiking prohibitions are not enforced, and specific sites are not protected, the outcome will trend downward in next 20 years.

Distribution

Circumboreal, south to Nova Scotia and northern New Hampshire. In the mountains of the western U.S., occurs south to California and New Mexico.

All known occurrences in the eastern U.S. are from the Presidential Range of the WMNF in New Hampshire. These populations are considered disjunct from the species' primary range.

Habitat

In New Hampshire, *Oxyria digyna* is an alpine obligate. It typically occurs in snowbank communities and on rocky slopes and ledges of headwalls. May occur near alpine streamsides.

Considered by the expert panel to be part of the snowbank/streamside/wet ravine alpine communities. These patch communities are characterized by heavy late melting snow, high moisture levels, and a relatively thick organic soil layer. Snow loading is important because it provides protection from harsh winters and fluctuations in spring temperatures. Snow and thick soils and/or streamside conditions provide the moisture levels that are critical for these species.

Limiting Factors

Hiking, winter camping, and late spring use are probably the most important factors affecting the snowbank/wet meadow/streamside community system, including *Oxyria digyna*. The threats from winter camping are not well documented, but are believed by several experts to be from compaction and loss of snow load if snow caves are built on top of less than 1-2' of snow, and concentration of human waste in snowbank community

patches. Winter camping is a greater concern for snowbank communities that are used for camping repeatedly in a winter.

Loss of snow load or compaction could pose a threat to this species, but the threat from trampling and other recreational use is greater. Global warming and acid rain may be threats, but it is uncertain how much they impact alpine species, and they are less important other threats.

Viability concern

The expert panel indicated that snowbank/wet ravine community species are very scattered; their distribution and association with others is unpredictable, making selection of focal or surrogate species for these communities inappropriate. WMNF contains 100% of known population in the eastern U.S.. Future outcome is expected to decline if hikers are not kept on trails and known occurrences are not protected, so species was kept on list to help ensure that sites are protected.

Management activities that might affect viability

The activities with potential to impact this species that the WMNF has some control over are trampling by hikers and winter camping that results in loss of snow loading and compaction. Management that would reduce the density of trails in the alpine zone or help keep hikers on designated trails would reduce the potential for trampling.

Local experts were asked about winter camping guidelines and potential impacts to snowbank community plants. They felt the current requirement for 2' of snow under any snow cave would be sufficient but are concerned, based on observations in the past, that some winter campers do not abide by this rule. The greater unknown is concentration of human wastes that could alter nutrient availability. Encouraging winter campers to pack out waste would help reduce potential impacts.

Trail construction or other development in the alpine zone could affect this species if it would directly impact a snowbank community patch, alter the hydrology of a suitable area, or increase human traffic near suitable habitat. Trail maintenance activities could alter habitat suitability or directly impact individuals.

References

Bliss, L. C. 1963. Alpine plant communities of the Presidential Range, New Hampshire. Ecology 44:678-697.

Brumback, W.E. 2002. Field notes from trip to Huntington and Pinnacle Ravine areas with Doug Weihrauch on August 20, 2002.

Crow, G. E. and I. M. Storks. 1980. Rare and endangered plants of New Hampshire: a phytogeographic viewpoint. Rhodora 82:173-190.

Gleason, H. A. and A. Cronquist. 1991. Manual of vascular plants of northeastern united States and adjacent Canada, 2nd edition. The New York Botanical Garden, Bronx, New York.

Haines, A. and T. F. Vining. 1998. Flora of Maine, a manual for identification of native and naturalized vascular plants of Maine. V. F. Thomas Co., Bar Harbor, Maine.

NatureServe: An online encyclopedia of life [web application]. 2001. Version 1.5. Arlington, Virginia. The Association for Biodiversity Information. Available: http://www.natureserve.org/. (Accessed: October 22, 2001).

Slack, N. G. and A. W. Bell. 1995. AMC field guide to New England alpine summits. Appalachian Mountain Club Books, Boston, Massachusetts.

Sperduto, D. 2002. Personal communication between Dan Sperduto, New Hampshire Natural Heritage Inventory botanist, and Stacy Lemieux, WMNF biologist.

Sperduto, D. D. and C. V. Cogbill. 1999. Alpine and subalpine vegetation of the White Mountains, New Hampshire. New Hampshire Natural Heritage Inventory, Concord NH. Submitted to the USDA Forest Service, White Mountain National Forest, Laconia, NH.

SVE. 2002. GMNF/WMNF Species Viability Evaluation expert panel on alpine plants. Panel held: May 13-15, 2002, Rutland, Vermont.